

NOTES ON THE CALIFORNIA SPECIES OF THE
GENUS PYLA GROTE

(Lepidoptera: Pyralidoidea)

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The black moths of the genus *Pyla* Grote are dayflying phycitids which, in western North America, inhabit boreal regions. Carl Heinrich, in his magnificent monograph of the Phycitinae (1956), divided the genus into two superficial species groups, those with grey forewings and those with shining black-brown wings. Four species are recorded from California, all of which are members of the latter group, the typical *Pyla* of the earlier authors.

During the course of the past few seasons, collecting in the mountains of northern California¹ has produced certain distributional data which seem significant. It has become apparent that *P. sylphiella* Dyar, previously only reported from Washington and British Columbia extends southward and is continuous with the California species, *P. scintillans* (Grote). In addition, a few remarks on variation and a description of the female of *P. nigricula* Heinrich are included in the present paper. Where not otherwise indicated in the data, the collection records are my own.

PYLA SCINTILLANS (Grote)²*Nephopteryx scintillans* Grote, Papilio, Vol. 1, p. 18, 1881.*Pyla scintillans* (Grote), Heinrich, U.S. Nat. Mus., Bull. 207, p. 146, 1956.*Pyla sylphiella* Dyar, *Ins. Insc. Menstr.*, Vol. 9, p. 68, 1921; Heinrich, U.S. Nat. Mus., Bull. 207, p. 147, 1956. (New synonymy.)

A shining, dark brown species with usually only faint indications of darker transverse banding on the forewing. Very distinctly marked specimens show dark markings on the forewings as follows: a broad median band which angles slightly outward; a thin subapical, usually somewhat sinuate, band; sometimes an irregular blotch between the bands on the dorsal margin. It may be easily distinguished from *P. fasciella* Barnes and McDunnough and *P. nigricula* Heinrich, which it closely resembles, by its longer palpi (exceed the head by about twice the diameter of the eye as seen from side, fig. 1). Alar expanse 20–26 mm.

¹ Field investigations during August, 1957 and July, 1958 carried out with the California Insect Survey, University of California, Berkeley.

² Complete synonymy has been given by Heinrich (1956).

Heinrich lists the distribution as Sierran, from Mineralking, Tulare County northward to Cisco, Placer County, all at high elevations. It is apparent, however, from the specimens I have examined, that in California the species ranges throughout the Sierras, the north central part of the state, and thence southward along the inner North Coast Ranges for some distance. The species is, in general, an early flier compared to the other California *Pyla*, with almost all collections having been made in July.

Heinrich, in his treatment of the genus, recognized both *P. scintillans* (Grote) and *P. sylphiella* Dyar as valid species even though they are indistinguishable on the basis of external characters. His criteria for separation were: minor differences in the male genitalia, the markedly different female genitalia, and the allopatric distribution of the two species. However, the California specimens of the complex are extremely variable in genitalic characters and include intermediates between his interpretation of *P. scintillans* and *P. sylphiella*. A series from Del Norte County seems to be fairly uniform in representing a southern extension of *P. sylphiella* in both male and female characters. A male from southern Siskiyou County appears to be intermediate in the harpe enlargements, while the aedeagus is of the *P. sylphiella* type. A male from Shasta County, although having the harpe characters of *P. sylphiella*, has one element of the aedeagus with one short thorn, the other with three, a situation typical of *P. scintillans*. The female genitalia in the specimens examined exhibit more variability than was indicated by Heinrich. Typical *P. sylphiella* forms occur in Del Norte and Siskiyou Counties, but not consistently. One interesting variety lacks both the heavily sclerotized deep folds of the lower part of the cup-shaped portion of the ductus bursae characteristic of *P. sylphiella* and the oval, blade-like projections of the cup evident in *P. scintillans*. This variant (fig. 3) has been found in random individuals from Del Norte County and in single specimens from Plumas and Glenn Counties. This may represent an intermediate form. Specimens from the southern Sierras seem more typical of *P. scintillans* in both sexes, but I have not seen any females really typical of either of the *P. scintillans* varieties figured by Heinrich.

In view of the nature of the intergrading characteristics evident in the complex, I regard *Pyla sylphiella* Dyar as a synonym

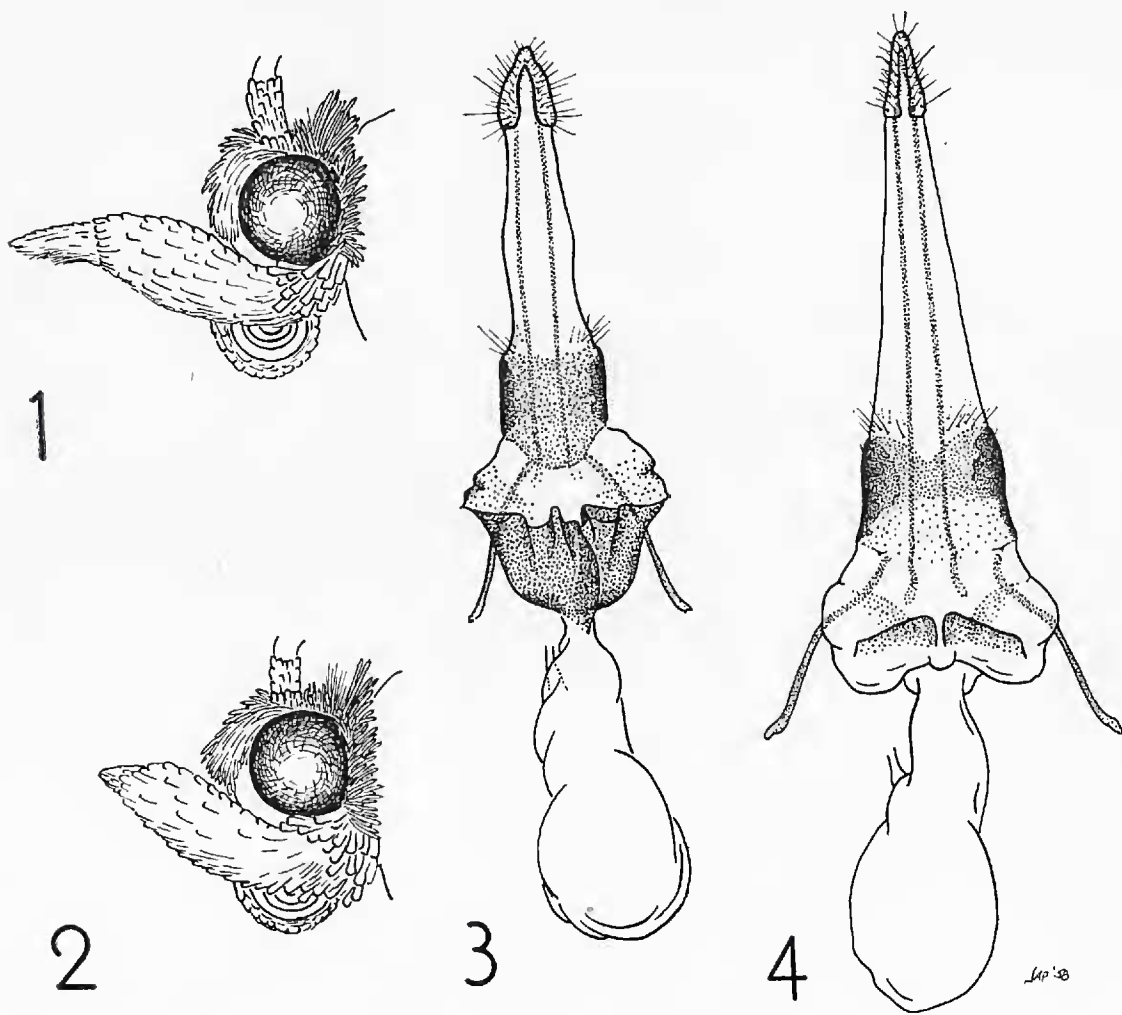
of *P. scintillans* (Grote), *P. scintillans* being a widespread species (central California north to British Columbia).

Material examined: (See map) 1 ♂, 5 mi. W. Sonora Pass, Tuolumne Co. VII.21.56; 1 ♀, Sonora Pass, Tuolumne Co. VII.21.56; 1 ♀, Glen Alpine Cr., El Dorado Co. VII.18.09 (F. X. Williams); 1 ♀, Mohawk, Plumas Co. VII.8.38 (W. R. Bauer); 1 ♀, Chester, 6 mi. E., Plumas Co. VII.14.54; 1 ♂, Hat Creek P. O., Shasta Co. VII.11.56 (J. W. MacSwain); 1 ♂, "Caslella" [prob. Castella, Shasta Co.] VII.'02 (no collector); 1 ♂, 1 ♀, Mt. Shasta City, Siskiyou Co. VII.2.58; 3 ♂ ♂, 11 ♀ ♀, Little Grayback. N.E. Del Norte Co. VII.9.58; 1 ♀, 5 mi. N. Black Butte, Glenn Co. 6200', VI.19.56.

PYLA NIGRICULA Heinrich

Pyla nigricula Heinrich, U.S. Nat. Mus., Bull. 207, p. 148, 1956.

Superficially *P. nigricula* is very much like *P. scintillans*, from which it differs by the smaller palpi (exceed the head by only about the diameter of the eye as seen from side, fig. 2), and



EXPLANATION OF FIGURES

Fig. 1, Lateral view of head of *Pyla scintillans* (Grote); fig. 2, Lateral view of head of *Pyla nigricula* Heinrich; fig. 3, Female genitalia (variant) of *Pyla scintillans* (Grote); fig. 4, Female genitalia of *Pyla nigricula* Heinrich.

apparently is almost indistinguishable from *P. fasciella*. All three are easily separated by their genital characters. Heinrich described *P. nigricula* from a unique male collected by A. H. Vachell at Verdi, Nevada. I have encountered it at spots to the south of the Lake Tahoe region, but only at elevations above 10,000 feet. Verdi is on the eastern side of the Sierras, and it seems probable that the specimen was collected in the mountains near Verdi to the west.

The male exhibits some variation in wing color, and I have a specimen which differs from the original description as follows: both the antemedial and submarginal dark bands of the forewing clearly indicated, the area between, as well as the margin, with the same bluish overscaling as is present on basal area. Another has just a faint suggestion of the median bluish, otherwise closely resembling the type description. Alar expanse 23–25 mm. (the type is 26 mm.).

The unique type is a male, and the previously unknown female is described at this time.

Head, palpi, other appendages, as in male. *Forewing* black, tinged with bluish overscaling as follows: basal area, median area except for an indistinct center blotch, a thin, distinct submarginal transverse line parallel with margin, marginal area; remaining black bands as follows: antemedial oblique line, irregular blotch at end of cell, two submarginal thin bands on either side of the distinct blue line. (In older specimens the bluish tends to become obscure, giving a less distinctly marked appearance). *Hind wing*, shiny dark brown as in male. Alar expanse 23–24 mm. *Genitalia* as in fig. 4 (three specimens examined), close to *P. fasciella* Barnes and McDunnough but differing by the smaller ovipositor pads (ratio of ovipositor pad length to: posterior apophyses distad of pads to: length of sclerotized band of ninth segment about 1:6:1.5; in *P. fasciella* about 1:4:1) and by minor differences in shape of the sclerotization of the ninth segment and paired plates of ductus bursae.

Neallotype female: SONORA PEAK, TUOLUMNE COUNTY, CALIFORNIA, August 10, 1957 (J. Powell) deposited in the California Insect Survey collection, University of California, Berkeley.

I have not seen *P. fasciella*, but judging from the description given by Heinrich, it is nearly indistinguishable from *P. nigricula* in external characters. Although the genitalia are distinct, the two entities are also geographically isolated (*P. fasciella* is known only from Mt. Shasta in northern California), and perhaps the status of *P. nigricula* should be reëvaluated when more material becomes available, especially from the intervening areas. It seems

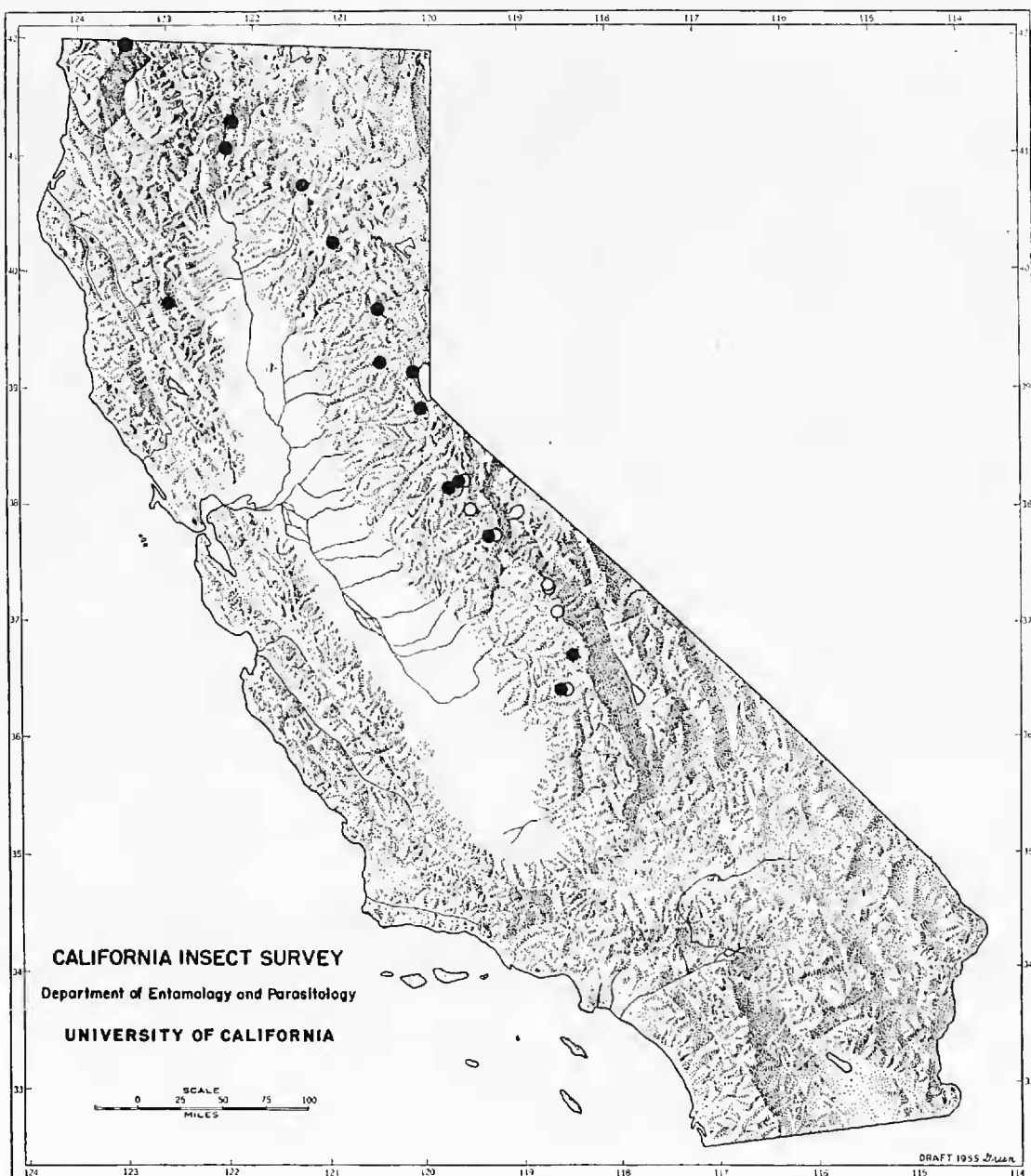
a distinct possibility that *P. nigricula* Heinrich represents a genitalic variant.

Material examined: 1 ♀, Ruby Lake, Inyo County [11,250 ft.] VIII.13.57; 1 ♀, near Mono Pass, Inyo County, 12,000', VIII.11.57 (C. D. MacNeill); 1 ♂, Sonora Pass, Tuolumne County, VII.21.56; 2 ♂ ♂, near Sonora Peak, Tuolumne County, 11,000', VII.14.57 (C. D. MacNeill); 4 ♀ ♀, Sonora Peak, Tuolumne County, VIII.10.57.

PYLA VIRIDISUFFUSELLA Barnes and McDunnough

Pyla viridisuffusella Barnes and McDunnough, Can. Ent., Vol. 49, p. 406, 1917; Heinrich, U.S. Nat. Mus., Bull. 207, p. 149, 1956.

A smaller moth (expanse 17–20 mm.), quite distinct from the



EXPLANATION OF MAP

Distribution of *Pyla scintillans* (Grote) (closed circles) and *Pyla viridisuffusella* Barnes and McDunnough (open circles) in California according to material examined and localities given by Heinrich (1956).

above mentioned species, with a shining metallic green or bronzy overscaling and usually with rather distinct transverse bands on the forewing. The intensity and quality of the color varies considerably between individuals.

Heinrich gives its distribution as the southern high Sierras, ranging from Mineralking, Tulare County, north to Kennick Meadows, Tuolumne County. The present records extend a little more northward. It was flying quite abundantly in northwest Inyo County in mid-August, along with occasional examples of *P. nigricula* Heinrich and another abundant Phycitine, *Catasia bistriatella* (Hulst), which it resembles on the wing.

Material examined: (See map) 1 ♂, 2 ♀ ♀, Ruby Lake, N.W. Inyo Co. VIII.13.57 (C. D. MacNeill), 7 ♂ ♂, 3 ♀ ♀, same data (J. Powell); 3 ♂ ♂, 2 ♀ ♀, nr. Mono Pass, Inyo Co. 12,000', VIII.(10-15).57 (C. D. MacNeill); 3 ♂ ♂, 4 ♀ ♀, same data (J. Powell); 1 ♂, Tuolumne Meadows, Tuolumne Co. "VIII.(1-7)" (no collector); 3 ♂ ♂, 1 ♀, Kennick Meadows, Yosemite Nat'l. Park, alt. 9,250', VII.28.34 (E. O. Essig); 1 ♀, nr. Sonora Peak, Tuolumne Co. 11,000', VII.10.57 (C. D. MacNeill), 2 ♀ ♀, same data (J. Powell).

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LITERATURE CITED

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OBSERVATIONS ON THE SURVIVAL OF ARHOPALUS PRODUCTUS (LeCONTE) LARVAE IN DOUGLAS-FIR LUMBER

(Coleoptera: Cerambycidae)

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Larvae of the roundheaded borer, *Arhopalus productus* (LeConte), often are found in the wood of dying or dead

¹ Maintained at Berkeley, California, in cooperation with the University of California.